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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,234	02/27/2004	In-Kwang Yu	6192.0359.US	4801

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EXAMINER

CHEN, WEN YING PATTY

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,234	YU, IN-KWANG	
	Examiner	Art Unit	
	Wen-Ying P. Chen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. (US 6414741) in view of Sekiguchi (US 2004/0046909).

With respect to claims 1 and 12: Hasegawa et al. disclose a system of manufacturing a liquid crystal display comprising: a panel manufacturing unit for manufacturing a liquid crystal panel assembly including a thin film transistor (TFT) (Fig. 1, element 12) and a liquid crystal layer interposed between the TFT array panel and the opposing array panel (Column 4, lines 22-27); a printed circuit film bonding unit (Fig. 1, element 22) for bonding a printed circuit film on the panel assembly; and an inspection unit (Fig. 9, element 104) for inspecting the bonding of the printed circuit film on the panel assembly. Moreover, Hasegawa et al. disclose a method of

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manufacturing a liquid crystal display comprising: manufacturing a liquid crystal panel assembly; bonding a printed circuit film on the panel assembly; inspecting the bonding of the printed circuit film on the panel assembly; and bonding a wire board to the printed circuit film (Column 4, lines 22-42).

However, Hasegawa et al. fail to specifically disclose that the opposing array substrate is of a color filter array panel and that the wire board is specifically a printed circuit board (PCB).

Sekiguchi, on the other hand, discloses a liquid crystal display panel comprising a color filter array panel (Paragraph 0137). Furthermore, Sekiguchi discloses the use of a printed circuit board (PCB) bonding unit for bonding a PCB to the printed circuit film (Paragraph 0144).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture a liquid crystal panel with a color filter array panel and bonding the printed circuit film to a printed circuit board as taught by Sekiguchi with the system and method of manufacturing of the liquid crystal panel taught by Hasegawa et al., since Sekiguchi teaches that the use of PCB enables the application of signals to the driving ICs of the display panel (Paragraph 0144) and that the color filter array panel provides coloring to the display panel.

As to claim 2: Hasegawa et al. disclose that the printed circuit film comprises a tape carrier package (Column 4, line 38).

As to claim 3: Hasegawa et al. disclose that the inspection unit comprises a CCD camera (Fig. 9, element 104).

As to claims 4-6: Hasegawa et al. disclose that the printed circuit film bonding unit bonds the printed circuit film on the panel assembly with an anisotropic conductive film (ACF)

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by compression (Column 4, lines 48-52), wherein the ACF comprises an adhesive containing a plurality of conductive particles (Column 7, line 63).

As to claim 7: Hasegawa et al. disclose that the inspection unit detects dents generated by the compression (Column 7, lines 56-67; wherein the shape of the conductive particles post compression along the substrate face is observed).

As to claim 8: Hasegawa et al. disclose that the inspection unit detects alignment of the printed circuit film with the panel assembly (Column 6, lines 56-67).

As to claim 9: Hasegawa et al. disclose that the bonding inspection unit is incorporated into the printed circuit film bonding unit (Column 6, lines 56-67; Fig. 7, elements 114 and 117; wherein the inspection unit comprises of the dummy lead wires and the branch wires).

As to claims 10 and 11: Hasegawa et al. disclose that the bonding inspection unit comprises two sub-units for inspection. The dummy lead wires, which are incorporated into the printed circuit film bonding unit for before bonding of the wire board inspection (Column 6, lines 56-67), and the aligning marks, which are incorporated into the wire board bonding unit for post bonding of the wire board inspection (Column 8, lines 45-54).

As to claims 13-15: Hasegawa et al. disclose that the inspection is performed both before and after bonding of the wire board (Column 6, lines 56-67; Column 8, lines 45-54).

As to claim 16: Hasegawa et al. disclose that the printed circuit film comprises a tape carrier package (Column 4, line 38).

As to claim 17: Hasegawa et al. disclose that the inspection unit comprises a CCD camera (Fig. 9, element 104).

As to claim 18: Hasegawa et al. disclose that the printed circuit film bonding unit bonds the printed circuit film on the panel assembly with an anisotropic conductive film (ACF) (Column 4, lines 48-52) containing a plurality of conductive particles (Column 7, line 63).

As to claims 19 and 20: Hasegawa et al. disclose that the bonding of the printed circuit film is performed by thermo compression (Column 7, lines 43-49), and that the inspection detects dents generated by the thermo compression (Column 7, lines 56-67; wherein the shape of the conductive particles post compression along the substrate face is observed).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wen-Ying P Chen

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Examiner

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wpc



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